Manufacturing Industries

Chapter 6 · Geography

Reading Guide · Glossary · Comprehension · Practice Questions · 10 Puzzles

NCERT Companion Workbook · Based on "Contemporary India II, Geography, NCERT Class X"

Name: _____

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Chapter Overview

This chapter explains why manufacturing is treated as the backbone of economic development, linking it to jobs, foreign exchange and reduced dependence on agriculture alone. It classifies industries by raw material, ownership, scale and product weight, then traces specific examples from textiles and sugar to steel, aluminium and chemicals. It closes by examining the pollution industries create and the practical steps suggested to control it.

Reading & Study Guide

Section	What to Focus On
Importance of Manufacturing	Notice how manufacturing links agriculture to wider industrial growth.
Classification of Industries	Compare industries by raw material, ownership, size and product weight.
Agro-based Industries: Textiles and Sugar	Track how cotton, jute and sugarcane become finished goods.
Mineral-based Industries: Iron and Steel, Aluminium	See what draws heavy industry toward the Chota Nagpur belt.
Industrial Pollution and Environmental Degradation	Notice how each industry causes a distinct kind of pollution.

Key Terms Glossary

Term	What It Means
MANUFACTURE	Turning raw material into a finished, more valuable product
SMELTING	Extracting metal from ore using intense heat
GINNING	Separating cotton fibre from its seeds before spinning
SPINNING	Twisting fibre into yarn before it is woven
WEAVING	Interlacing yarn on a loom to make fabric
TEXTILE	Industry covering the full chain from fibre to fabric
KHADI	Hand-spun, handwoven cloth associated with cottage industry
JUTE	Fibre crop processed into gunny bags and mats
COTTON	Fibre crop that anchors India's textile industry
SILK	Fine fibre obtained from the cocoons of silkworms

CONSUMER	Industry making goods bought directly by the public
COOPERATIVE	Industry owned jointly by producers who share profit
PRIVATE	Industry owned and run by individuals or a company
PUBLIC	Industry owned and operated by government agencies
JOINT	Industry run together by government and private investors
CEMENT	Product made from limestone, essential for construction
FERTILIZER	Chemical product that boosts soil nutrients for crops
CHEMICAL	Industry producing acids, alkalies and other compounds
AUTOMOBILE	Industry manufacturing cars, buses and two-wheelers
ELECTRONICS	Industry making devices from transistors to computers
EFFLUENT	Liquid industrial waste discharged into water bodies
POLLUTION	Contamination of air, water, land or through noise
ALUMINIUM	Light, corrosion-resistant metal smelted from bauxite
HANDLOOM	Traditional hand-operated device for weaving cloth
STEEL	Strong alloy of iron used across engineering industries

Comprehension Questions

Q1. Why is manufacturing considered the backbone of a country's economic development?

Q2. How are industries classified on the basis of ownership? Give one example of each.

Q3. What factors drew the cotton textile industry to Maharashtra and Gujarat?

Q4. Why is the sugar industry well suited to the cooperative sector?

Q5. What raw materials does the iron and steel industry need, and in what proportion?

Q6. How does the chemical industry function as 'its own largest consumer'?

Q7. What are the four types of pollution caused by industries, according to the chapter?

Q8. What steps can reduce industrial water pollution?

Short-Answer Practice (Worked Examples)

Q1. Which Indian city hosted the first successful cotton textile mill?

Q2. What raw material ratio is required for iron and steel production?

Q3. Which region has the densest concentration of iron and steel plants in India?

Q4. Which city is identified as the electronic capital of India?

Q5. What boosted India's cotton textile industry during the World Wars?

Objective Practice

A. Multiple Choice Questions

Circle the correct option.

1. Which industry uses bauxite as its main raw material?

a) Aluminium smelting

b) Cement

c) Paper

d) Steel

2. Which industry manufactures telephones, computers and similar devices?

a) Steel

b) Electronics

c) Aluminium smelting

d) Cement

3. The first successful cotton textile mill in India was established in which city?

a) Kolkata

b) Chennai

c) Mumbai

d) Ahmedabad

4. What is the approximate ratio of iron ore, coking coal and limestone needed for steel-making?

a) 1:1:1

b) 4:2:1

c) 2:4:1

d) 1:2:4

5. About sixty per cent of India's sugar mills are located in which two states?

a) Punjab and Haryana

b) Uttar Pradesh and Bihar

c) Maharashtra and Karnataka

d) Gujarat and Rajasthan

6. The first jute mill in India was set up near which city?

a) Mumbai

b) Kolkata

c) Chennai

d) Surat

7. Public sector industries are owned and operated by whom?

a) Individuals

b) Government agencies

c) Foreign companies

d) Cooperatives only

8. Which of the following is an example of a joint sector industry?

a) TISCO

b) Bajaj Auto Ltd.

c) Oil India Ltd.

d) SAIL

9. Which agro-based industry is especially well suited to the cooperative sector?

a) Cement

b) Sugar industry

c) Aluminium smelting

d) Electronics

10. Aluminium smelting is described as India's which most important metallurgical industry?

a) First

b) Second

c) Third

d) Fourth

B. True or False

1. Manufacturing industries help reduce dependence on agricultural income alone.
2. Public sector industries are owned and run by private individuals.
3. India's textile industry covers the complete chain from raw fibre to finished product.
4. Iron and steel is classified as a light industry because of its low weight.
5. The chemical industry in India includes both organic and inorganic sectors.
6. Noise pollution has no effect on human health.
7. Treating industrial effluents before releasing them into rivers helps reduce water pollution.
8. Bengaluru is recognised as India's electronic capital.

C. Match the Following

Column A	Column B
1. Ginning	a) Liquid waste discharged by factories
2. Sericulture	b) Separating cotton fibre from its seed
3. Smelting	c) Rearing silkworms for silk fibre
4. Public sector	d) Industry owned and run by government agencies
5. Cooperative sector	e) Industry owned jointly by producers
6. Chota Nagpur plateau	f) Region with the densest steel plant concentration

7. Effluent	g) Extracting metal from ore using heat
8. Bengaluru	h) India's leading electronics and IT industry hub

Higher-Order Thinking (HOTS) Questions

Q1. The chapter argues agriculture and industry 'move hand in hand.' Using the fertilizer and textile examples, explain how growth in one sector can drive growth in the other.

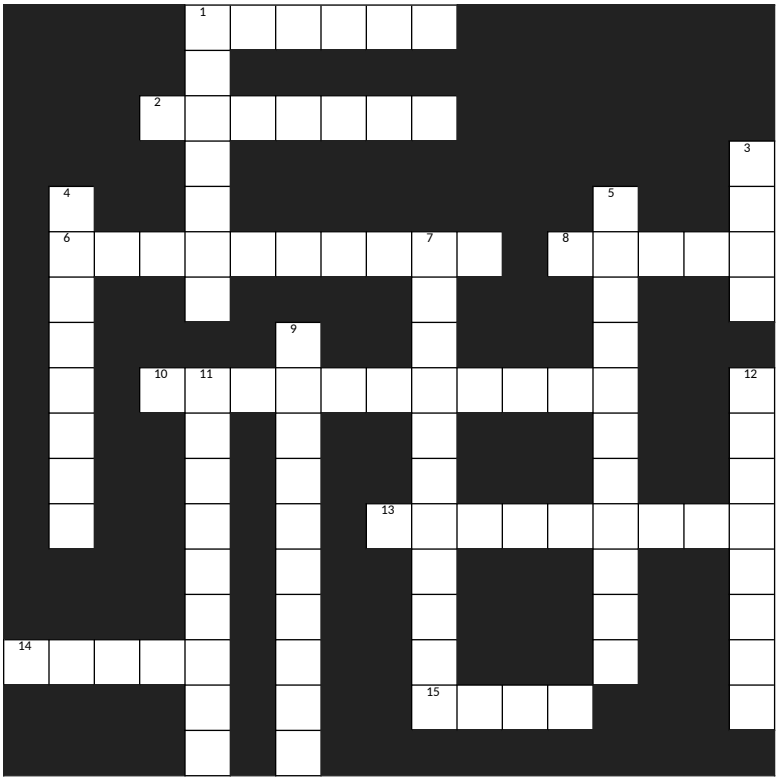
Q2. Why might the government have promoted public and joint sector industries alongside private ones after Independence, based on the chapter's stated aims?

Q3. The Chota Nagpur plateau has both rich mineral wealth and heavy industrial pollution. What tension does this create between economic development and environmental protection?

Q4. Compare the location factors for a bulky raw-material industry like cement with a knowledge-based industry like electronics.

Puzzle Pack -- 10 Puzzles for This Chapter

1. Crossword



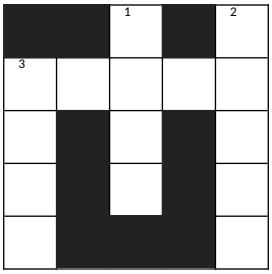
ACROSS

1. Industry owned and operated by government agencies
2. Separating cotton fibre from its seeds before spinning
6. Chemical product that boosts soil nutrients for crops
8. Industry run together by government and private investors
10. Turning raw material into a finished, more valuable product
13. Contamination of air, water, land or through noise
14. Hand-spun, handwoven cloth associated with cottage industry
15. Fine fibre obtained from the cocoons of silkworms

DOWN

1. Industry owned and run by individuals or a company
3. Fibre crop processed into gunny bags and mats
4. Liquid industrial waste discharged into water bodies
5. Industry owned jointly by producers who share profit
7. Industry making devices from transistors to computers
9. Industry manufacturing cars, buses and two-wheelers
11. Light, corrosion-resistant metal smelted from bauxite
12. Twisting fibre into yarn before it is woven

2. Mini Crossword



ACROSS

3. Industry run together by government and private investors

DOWN

1. Fine fibre obtained from the cocoons of silkworms
2. Strong alloy of iron used across engineering industries
3. Fibre crop processed into gunny bags and mats

3. Word Search

T	Q	T	C	R	X	B	H	R	I	I	D	A	H	K
N	C	N	R	F	C	G	A	R	N	A	L	E	L	M
E	N	E	C	R	I	C	N	R	E	U	A	L	U	W
U	O	M	O	J	L	G	D	C	T	T	C	E	M	P
L	I	E	O	S	B	N	L	F	A	O	I	C	A	J
F	T	C	P	P	U	I	O	W	V	M	M	T	N	M
F	U	J	E	I	P	T	O	E	I	O	E	R	U	U
E	L	U	R	N	W	L	M	A	R	B	H	O	F	I
L	L	T	A	N	D	E	G	V	P	I	C	N	A	N
I	O	E	T	I	Z	M	P	I	M	L	Y	I	C	I
T	P	A	I	N	E	S	N	N	Q	E	H	C	T	M
X	U	L	V	G	R	R	N	G	M	A	Z	S	U	U
E	C	F	E	R	T	I	L	I	Z	E	R	F	R	L
T	Z	T	Y	D	C	O	N	S	U	M	E	R	E	A
L	L	U	O	G	I	N	N	I	N	G	S	I	L	K

Find: ALUMINIUM · AUTOMOBILE · CEMENT · CHEMICAL · CONSUMER · COOPERATIVE · EFFLUENT · ELECTRONICS · FERTILIZER · GINNING · HANDLOOM · JUTE · KHADI · MANUFACTURE · POLLUTION · PRIVATE · PUBLIC · SILK · SMELTING · SPINNING · TEXTILE · WEAVING

4. Cryptogram

Each letter was replaced by another. Crack the code.

CYV WYFXCMYT YJU TKHYFMKJ FKPXFLXC GLYIX VLXCX MJUMY'G NYHFKCMXG PCKV.

5. Caesar Coded Message

Every letter is shifted by the same amount. Find the shift.

BPCJUPRIJGXCV XCSJHIGXTH. GPL BPITGXPA PCS ADRPIXDC IDVTIWTG HWPET LWTGT XCSXP'H UPRIDGXTH VGDL.

6. Word Scramble

Unscramble each set of letters using the clue.

1. ELHACCMI -- Industry producing acids, alkalies and other compounds
2. LTIEEXT -- Industry covering the full chain from fibre to fabric
3. SIEECRNTOLC -- Industry making devices from transistors to computers
4. NCUUFAAMTRE -- Turning raw material into a finished, more valuable product
5. TJEU -- Fibre crop processed into gunny bags and mats
6. IEFLRETRZI -- Chemical product that boosts soil nutrients for crops
7. KLIS -- Fine fibre obtained from the cocoons of silkworms
8. GPNNSNII -- Twisting fibre into yarn before it is woven
9. VEIAOPTCEOR -- Industry owned jointly by producers who share profit
10. INIAULMUM -- Light, corrosion-resistant metal smelted from bauxite

7. Acrostic

The highlighted letters spell a theme.

I _ _ _ _ _ _ _ _ Extracting metal from ore using intense heat
N _ _ _ _ _ _ _ _ _ _ _ Turning raw material into a finished, more valuable product
D _ _ _ _ _ Hand-spun, handwoven cloth associated with cottage industry
U _ _ _ _ Fibre crop processed into gunny bags and mats
S _ _ _ _ _ _ _ _ Twisting fibre into yarn before it is woven
T _ _ _ _ _ _ _ Industry covering the full chain from fibre to fabric
R _ _ _ _ _ _ _ _ Industry making goods bought directly by the public
Y _ _ _ _ _ _ (add your own)

8. Match the Pairs

Match Column A with Column B.

Column A	Column B
A. ELECTRONICS	1. Hand-spun, handwoven cloth associated with cottage industry
B. GINNING	2. Industry manufacturing cars, buses and two-wheelers
C. KHADI	3. Turning raw material into a finished, more valuable product
D. AUTOMOBILE	4. Separating cotton fibre from its seeds before spinning
E. TEXTILE	5. Industry owned jointly by producers who share profit
F. COOPERATIVE	6. Industry covering the full chain from fibre to fabric
G. MANUFACTURE	7. Chemical product that boosts soil nutrients for crops

H. FERTILIZER	8. Industry making devices from transistors to computers

9. Fill in the Blanks

Fill each blank.

1. Extracting metal from its ore using intense heat is called _____.
2. The light metal smelted from bauxite is called _____.
3. Liquid industrial waste discharged into rivers is called _____.
4. Separating cotton fibre from its seeds before spinning is called _____.
5. A strong alloy of iron used widely in construction and engineering is _____.
6. An industry owned jointly by government and private investors is a _____ sector industry.
7. Hand-spun, handwoven cloth linked to cottage industry is called _____.
8. An industry owned and run entirely by government agencies is a _____ sector industry.

10. Odd One Out

Circle the item that does not belong.

1. Spinning Ginning Weaving Smelting
2. Public sector Effluent Private sector Joint sector
3. Cotton Silk Jute Bauxite
4. Air pollution Fertilizer Noise pollution Water pollution